

ANGKA GILIRAN:.....

UNIVERSITI SAINS MALAYSIA

Second Semester Examination
2009/2010 Academic Session

April/May 2010

RLD 503/3 – Landscape Construction
(Pembinaan Landskap)

Duration: 3 hours
[Masa: 3 jam]

Please check that this examination paper consists of SEVEN pages of printed material before you begin the examination.

Sila pastikan bahawa kertas peperiksaan ini mengandungi TUJUH muka surat yang tercetak sebelum anda memulakan peperiksaan ini.

Students are allowed to answer all questions either in English OR Bahasa Malaysia only.

Pelajar dibenarkan menjawab semua soalan dalam Bahasa Inggeris ATAU Bahasa Malaysia sahaja.

Answer **ALL** questions.

Jawab **SEMUA** soalan.

Please submit this question paper with your answer paper.

Sila hantar kertas soalan ini bersama-sama kertas jawapan.

In the event of any discrepancies, the English version shall be used.

Sekiranya terdapat sebarang percanggahan pada soalan peperiksaan, versi Bahasa Inggeris hendaklah digunapakai.

- 2 -

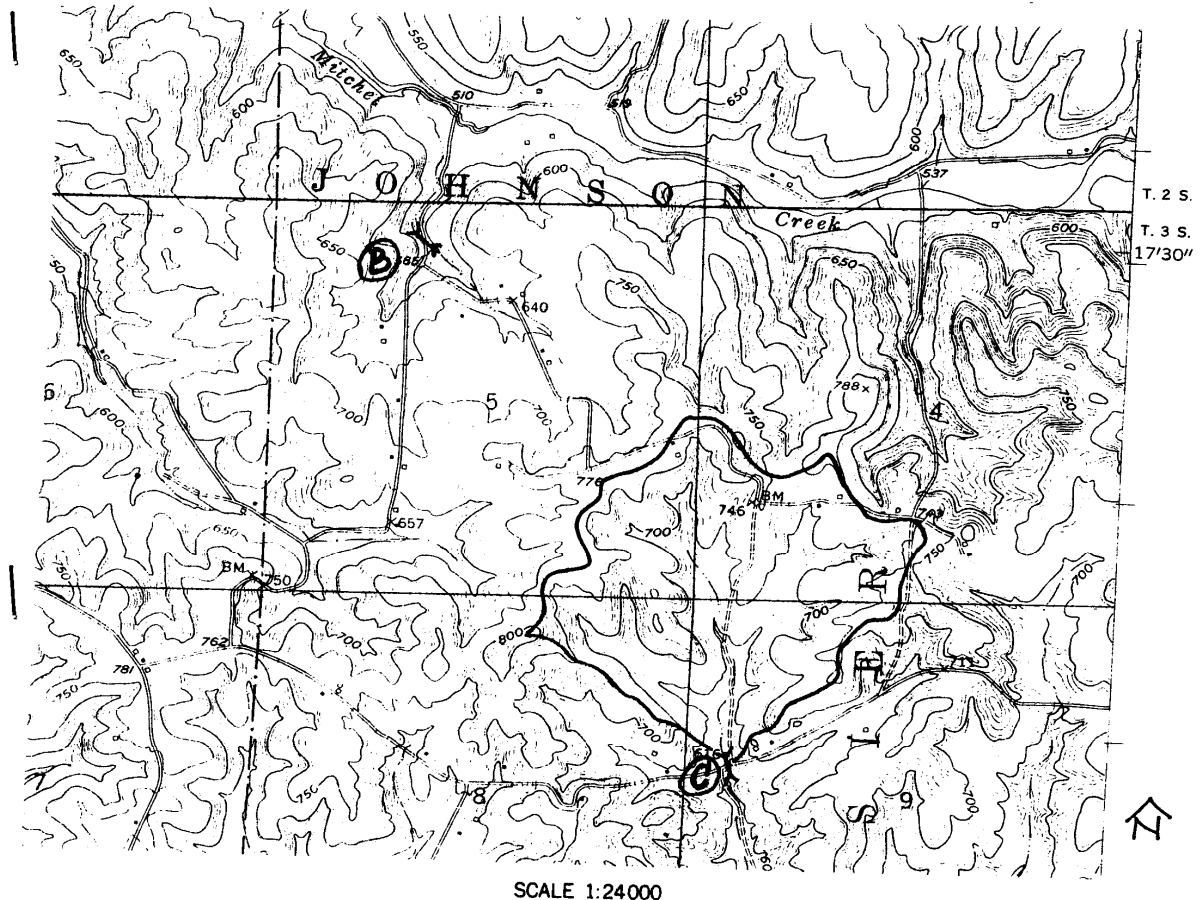
1. (a) The Indiana Department of Transportation and the Dubois County Highway Dept. are replacing the culvert at location "C" on the map. The entire watershed (outlined on the map) is rolling woodland on open sandy loamy soils. Compute the runoff (Q) from the watershed and the size of culvert pipe needed. Assume a storm intensity of 1.0 inch per hour and a pipe slope of 5%. Measure the watershed area with the digital plain meter provided. (1 acre = 43,560 sq.ft.)

- (i) Area in square inches = _____
(ii) Map scale 1 inch = _____
(iii) Area in square feet = _____
(iv) Area in acres = _____
(v) Q in cubic feet per second = _____
(vi) Diameter of culvert pipe in inches = _____

(16 marks/markah)

- (b) Draw the watershed boundary for the culvert at location "B" on the **Map 1**.

MAP 1



SCALE 1:24000

(4 marks/markah)

...3/-

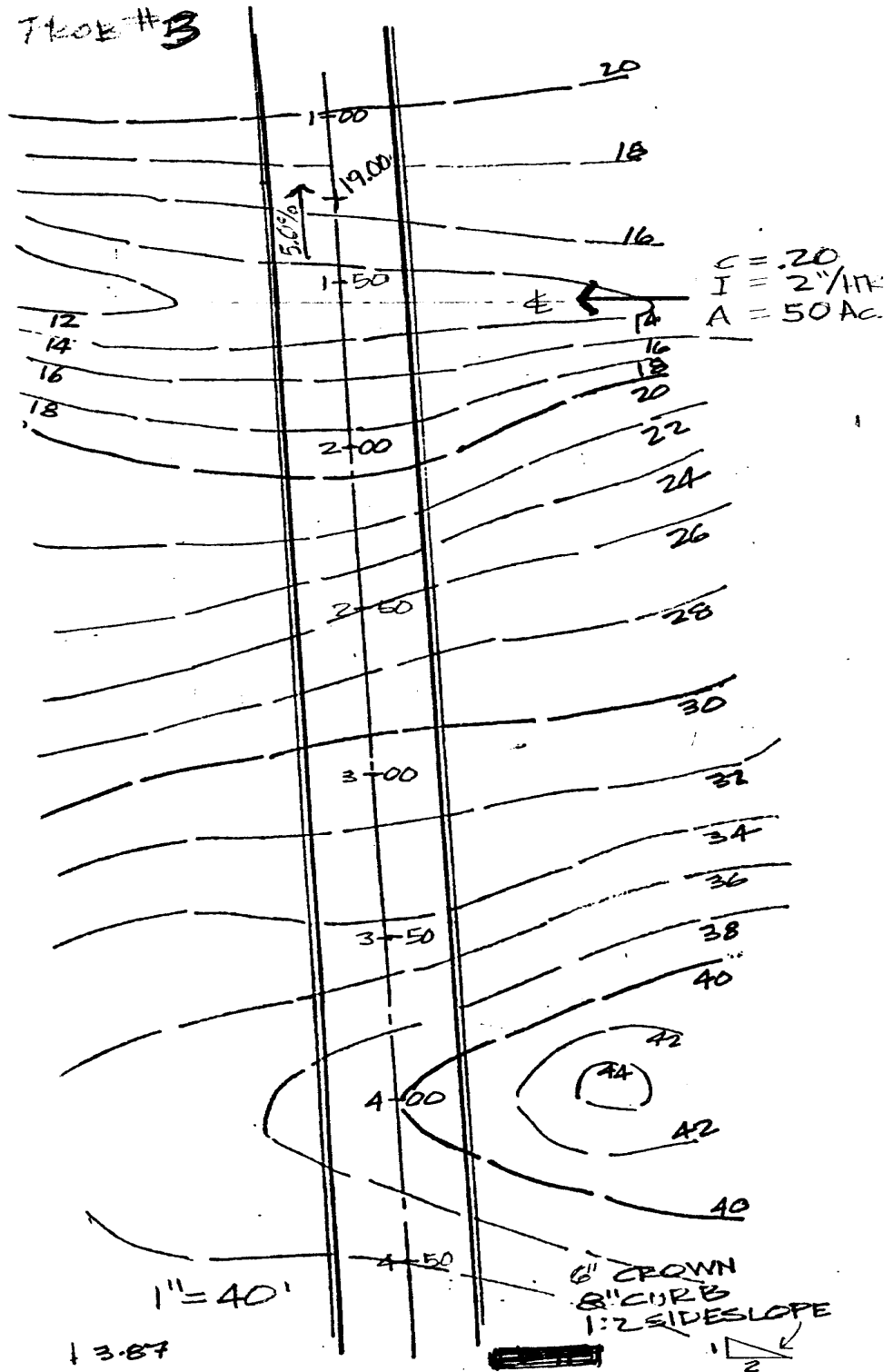
- 3 -

2. As a Landscape Architect, you are required to submit a Landscape Grading Plan. Grade the following proposed development according to the given design criteria.
- (a) Park Road: 6" crown, 6" curb, centerline slope = 1% min and 7% max., 3 : 1 side slopes.
 - (b) Entry Drive: 6" curb, no crown cross slopes = 2% min.
 - (c) Parking Lot: 6" curb, longitudinal = 2%, cross-slope = 3%.
 - (d) Picnic Lodge Building = drain water away from all sides. Provide 10' zone adjacent to building at 2%.
 - (e) Swales: flow line slope = 2% min., 5% max.
 - (f) Basketball Court: grade uniform at 1.5%
 - (g) Cut and Fill Slopes: max 4:1
- Avoid grading within drip line of existing trees.
 - (h) Shade areas graded: red for cut, blue for fill.
 - (i) Calculate all spot elevations for road, and parking lot to nearest one hundredths of a foot (.01).
 - (j) Give all spot elevations marked (+) and locate all other relevant necessary spot elevations, flow lines and contours.
 - (k) Sidewalk gradients, 1% min. and 8% max.

(20 marks/markah)

3. Draw the contour lines for the proposed grading of the road between stations 1 + 00 and 4 + 00 using the spot elevation and road gradient shown on the plan.

(20 marks/markah)



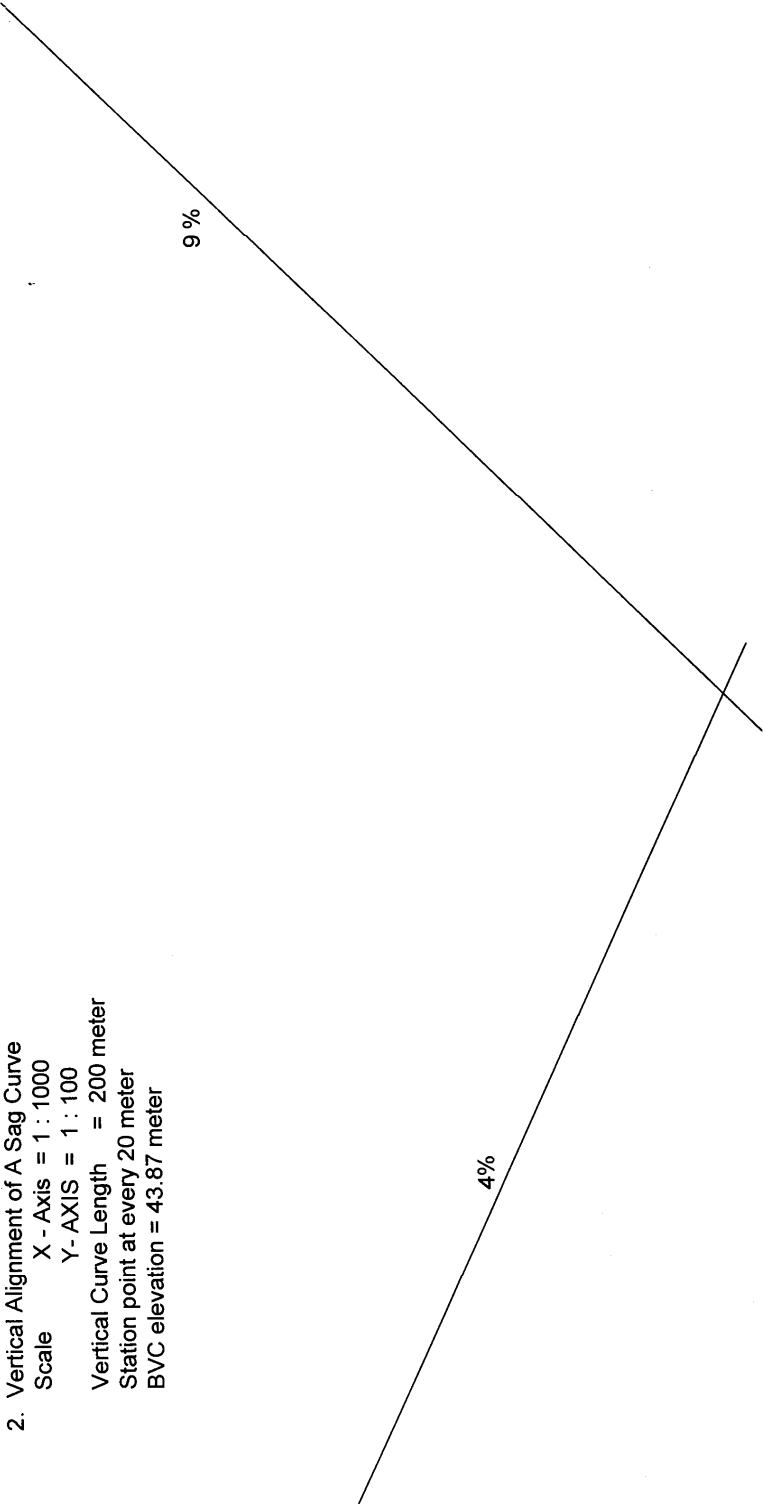
4. A deck 50 feet by 100 feet dimension with a height of 5 feet above ground was constructed with planed planks for decking measuring $\frac{6}{8}$ inches x $5\frac{6}{8}$ inches x 10 feet long placed at $\frac{1}{4}$ inch gap. Assuming a man weigh 250 pounds may stand on a single plank. Using Dark Red Meranti, determine the spacing, span and size of the joist, beam, and post for this deck. Design consideration is for 40 psf live load and 10 psf dead load.

(20 marks/*markah*)

5. Solve the vertical alignment of the road shown. Please refer to **Appendix 1**.

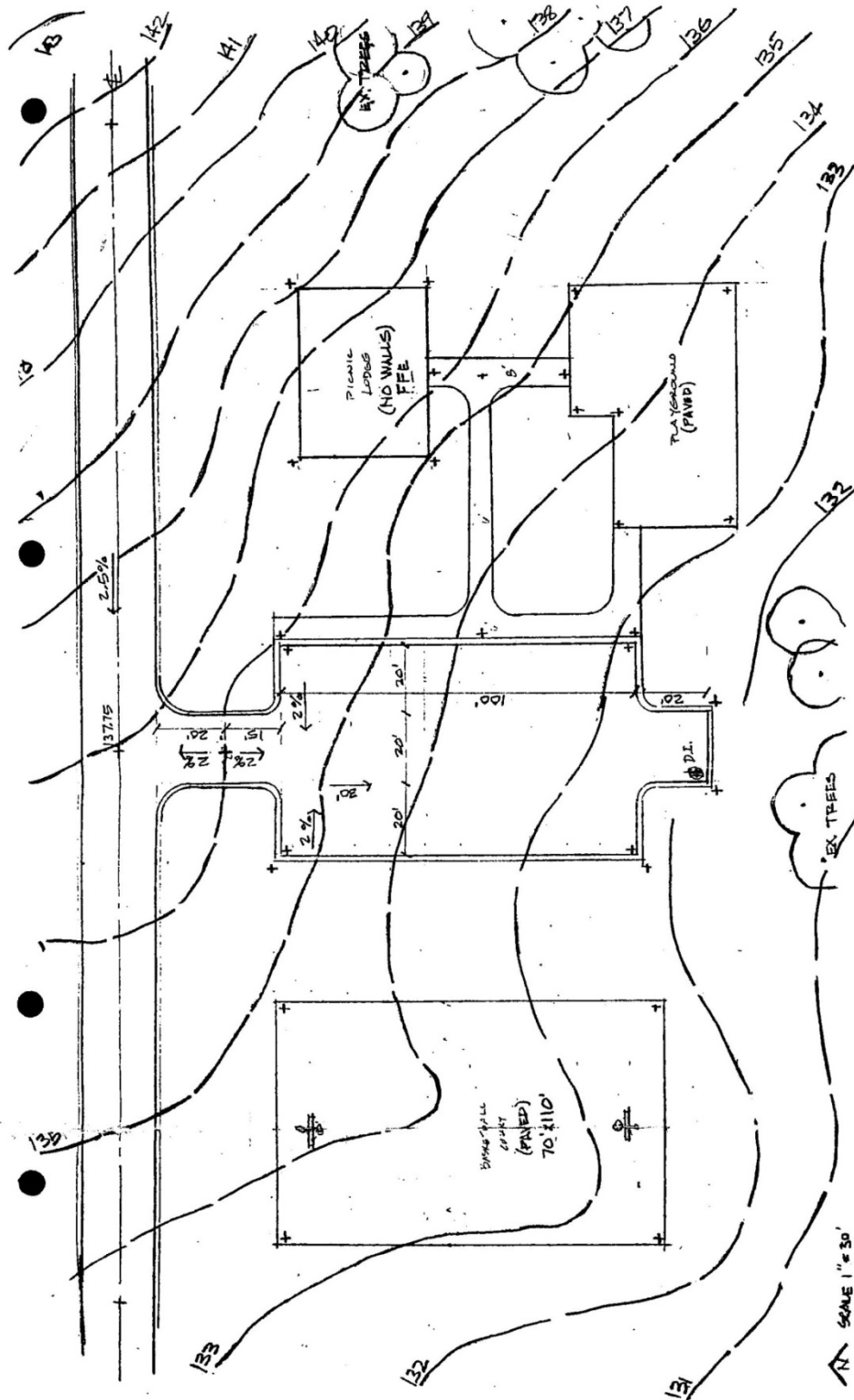
(20 marks/*markah*)

APPENDIX 1



2. Vertical Alignment of A Sag Curve
Scale X - Axis = 1 : 1000
Y - AXIS = 1 : 100
Vertical Curve Length = 200 meter
Station point at every 20 meter
BVC elevation = 43.87 meter

Bagi Sealan No. 2



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